Department of
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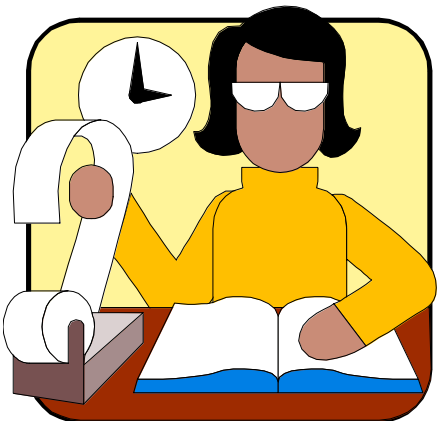
Bureau of Land & Water Quality December 2004
O&M Newsletter

A monthly newsletter for wastewater discharge licensees, treatment facility operators, and associated persons



Financial Management
Article 4 – Accounting

The story has it that the first reference to accounting comes from ancient Egypt where the Pharaohs needed to know if they had adequate amounts of grain, sheep, goats, etc. to feed the people. The Pharaoh sent people out into the fields to count his possessions and report back. This is the first known example of accounting, but the principle is still the same… counting your assets (what you have) and liabilities (what you owe) and coming up with a reckoning of your financial position.

Accounting gives us a structure to keep track of things… goods, cash and what we owe to others. Accounting lets us see not only a 'snapshot' of our present situation but also trends that can help us make food business decisions.

Accounting is based on the idea of financial transactions. A few examples of financial transactions are

- A check written against a bank account
- A cash purchase of a good or service
- A deposit made to a checking or savings account.
- The value of an asset changes (some assets appreciate, or gain value other depreciate, or loose value.)
- A product is made that is worth more than the cost of the materials used to make it.

There are, of course, many other examples.

When you set up an accounting system, you must first identify and then categorize the types of transactions you expect to occur. Some transactions entail cash or bank accounts. Some involve changes in inventory or other asset values. Some comprise receivables from customers or payables to suppliers.

When you have identified these categories of transactions, you need to make a chart of accounts. Fortunately, the Maine Rural Water Association has developed a 'Uniform System of Accounts' for wastewater treatment facilities that has done this for you. The MRWA system may include accounts that you will never use in your system. It is, however a very comprehensive tool and a good starting place for anyone who hasn't developed their own chart of accounts.

A typical chart of accounts includes at least the following major categories:

1. Asset Accounts - things of value owned by the facility
2. Liability Accounts – money owed to others
3. Equity Accounts – the value of the capital structure (buildings, tanks, equipment, vehicles, etc.)
4. Revenue Accounts – sources of income to the facility
5. Expense Accounts – payments necessary to run the operation

In traditional accounting, a credit to one account is always balanced by a debit to another account. Each value input to the system is a credit (-) to one account and a debit to another. You can look at an accounting system as a row of buckets. One bucket might be labeled "checking account" while another might be labeled 'phone expenses". When you pay the phone bill, the money is taken from (a credit to) the "checking account" bucket and put in (debited to) the "phone expenses" bucket. There must always be a balance between the credits and debits so that the total amount of money in the buckets remains constant.

The system of accounts is usually traced on a General Ledger (GL). The GL is a report of each account for a specific time period that shows changes in the balance of each account and the transactions that contributed to that change. From the GL, two summary reports are usually developed, The Balance Sheet and the Profit and Loss statement. Although most wastewater facilities are no operated on a "for profit" basis, a Profit and Loss (P&L) statement can give you a good indication if you are receiving enough income to pay you bills, including setting some money aside for future capital expenses.

The balance sheet is a report that shows you where you stand, financially, at a given point in time. If your assets were all converted to cash and that cash was used to pay all your liabilities, (unless some accounting miracle occurred) you would have some cash left over or you would have a deficit and have to come up with cash to pay the outstanding liabilities. For those of us to attend town meeting every year, you know that there is always an article in the warrant to either appropriate money to pay accounts that have been over-expended or to transfer "extra" money to a reserve account when an account is under-expended.

A P&L statement is a similar report. Again, while publicly owned treatment facilities can't make a "profit", if the annual P&L statement shows that revenues exceeded expenses, the 'extra' money can be added to a reserve fund or rates can be adjusted to bring the P&L statement closer to a balance in future years. The decision of how to use any "profit" should probably not be made on a year-to-year basis but should be based on a longer-term trend. As we all know, unforeseen expenses have a way of cropping up at the worst possible time and a reserve account can greatly help meet those expenses when they happen.

In addition to a general ledger, you might also want to set up an accounts payable ledger to track the money you owe to vendors of goods and services and an accounts receivable ledger to track the money your customers owe you. You might also want a separate payroll system to track your employees' pay including amounts withheld for taxes and benefits, the employer's contributions to taxes and any benefits. The ins and outs of payroll accounting can be complex and a computer system to handle this or using a payroll service can be well worth the money.

There are some very good computer software accounting packages available. These are usually aimed at small businesses

but they have the tools you need to do your accounting properly. If you do decide to use a computerized system, get advice from a professional who knows the wastewater industry and your needs. When the system is put in place, make sure that everyone who will be using it is properly trained and that there is good support available for the users.

Next month, we'll finish up are series of financial management articles with a discussion of ratemaking. Your major source of income is your user charges. We'll look at the ways those rates can be set and make some suggestions about how they can be made as fair as possible and still insure that you have enough cash in the bank to run your facility.

Dick Darling

For Practice:

1. The term mL (milliliter) in the expression mL/L is a measure of
   a. Volume
   b. Length
   c. Mass
   d. Area

2. The total copper in the effluent from a printed circuit manufacturer is measured daily. The following are the results from eight (8) days of measurements. What is the highest consecutive four (4) day average that occurred during this period?

Day								
Day	1	2	3	4	5	6	7	8
Copper in mg/L	6.2	5.3	6.5	5.9	6.4	6.5	6.9	6.6

   a. 6.3 mg/L
   b. 6.5 mg/l
   c. 6.6 mg/L
   d. 6.9 mg/L

3. In some industries, chemicals are added to certain processes as complexing agents to tie up or complex certain metals. The function of the complexing agents is to:
   a. Buffer the solution to a pH of 7.0
   b. Prevent the metals from forming insoluble compounds and falling out of the solution as a precipitate.
   c. Reduce the volume of sludge created in the process
   d. Enhance settling when the pH is raised.

4. Ozone is an unstable, active form of
   a. Hydrogen
   b. Nitrogen
   c. A Mixture of several gasses
   d. Oxygen

Certification News

The Fall 2004 wastewater operator certification exam was given on ***November 10, 2004*** in the usual locations. If you took the exam the results should be back in 4 to 6 weeks. ***Please*** don't call Leslie Rucker or me to ask what score you got on the exam. We turn the test results around as quickly as we can once we receive the scores back from ABC. It's usually no more than a day after we receive them.

The Spring, 2005 exam will be given in the usual places on May 11, 2005.

Approved Training

December 15, 2004 in Bangor ME - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 7 hours
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December 16, 2004 in Waterville ME - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 7 hours
December 14, 2004 in Norway ME - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 7 hours
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December 14, 2004 in Scarborough ME - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 7 hours
January 11, 2005 in York, ME – Three Stooges of Water and Wastewater Testing – Sponsored by MRWA – 729-6569 – Approved for 4 hours.
*****
January 12, 2005 in Augusta, ME, with ATM Training available in Greenville, ME, Presque Isle, ME and Farmington, ME – Three Stooges of Water and Wastewater Testing – Sponsored by MRWA – 729-6569 – Approved for 4 hours.
*****
January 13, 2005 in Bangor, ME – Three Stooges of Water and Wastewater Testing – Sponsored by MRWA – 729-6569 – Approved for 4 hours.
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Answers to *For Practice:*

1. a. The term *mL* or *milliliters* is a measure of volume. 1 milliliter equals 1/1000 liter.

2. c. The highest average for a consecutive four day period is for the last four days is
Average = (6.4 + 6.5 + 6.9 + 6.6)/4 = 6.6

3. b. Complexing agents are added to keep metals in the solution for manufacturing purposes. They prevent the metals from reacting with other chemical to form insoluble precipitates.

4. d. Ozone is a molecule comprised of three Oxygen atoms. It is very active and quickly changes to the more common O_2 Oxygen Molecule.

Happy Holidays to all.